

§ 173.418

49 CFR Ch. I (10–1–13 Edition)

(3) DOT Specification 20PF–1, 20PF–2, or 20PF–3 (see §178.356 of this subchapter), or Specification 21PF–1A, 21PF–1B, or 21PF–2 (see §178.358 of this subchapter) phenolic-foam insulated overpack with snug fittings inner metal cylinders, meeting all requirements of §§173.24, 173.410, 173.412, and 173.420 and the following:

(i) Handling procedures and packaging criteria must be in accordance with United States Enrichment Corporation Report No. USEC–651 or ANSI N14.1 (IBR, see §171.7 of this subchapter); and

(ii) Quantities of uranium hexafluoride are authorized as shown in Table 3 of this section, with each package assigned a minimum criticality safety index as also shown.

(b) Fissile Class 7 (radioactive) materials with radioactive content exceeding  $A_1$  or  $A_2$  must be packaged in one of the following packagings:

(1) Type B(U), or Type B(M) packaging that meets the standards for packaging of fissile materials in 10 CFR part 71, and is approved by the U.S. Nuclear Regulatory Commission and used in accordance with §173.471;

(2) Type B(U) or Type B(M) packaging that also meets the applicable

requirements for fissile material packaging in Section VI of the International Atomic Energy Agency “Regulations for the Safe Transport of Radioactive Material, No. TS-R-1,” and for which the foreign Competent Authority certificate has been revalidated by the U.S. Competent Authority in accordance with §173.473. These packagings are authorized only for import and export shipments; or

(3) DOT Specifications 20PF–1, 20PF–2, or 20PF–3 (see §178.356 of this subchapter), for DOT Specifications 21PF–1A or 21PF–1B (see §178.356 of this subchapter) phenolic-foam insulated overpack with snug fitting inner metal cylinders, meeting all requirements of §§173.24, 173.410, and 173.412, and the following:

(i) Handling procedures and packaging criteria must be in accordance with United States Enrichment Corporation Report No. USEC–651 or ANSI N14.1; and

(ii) Quantities of uranium hexafluoride are authorized as shown in Table 3, with each package assigned a minimum criticality safety index as also shown:

TABLE 3—AUTHORIZED QUANTITIES OF URANIUM HEXAFLUORIDE

Protective overpack specification number	Maximum inner cylinder diameter		Maximum weight of UF <sub>6</sub> contents		Maximum U–235 enrichment (weight/percent)	Minimum criticality safety index
	Centimeters	Inches	Kilograms	Pounds		
20PF–1 .....	12.7	5	25	55	100.0	0.1
20PF–2 .....	20.3	8	116	255	12.5	0.4
20PF–3 .....	30.5	12	209	460	5.0	1.1
21PF–1A <sup>1</sup> or 21PF–1B <sup>1</sup> <sup>2</sup> 76.0 .....	<sup>2</sup> 30	2,250	4,950	5.0	5.0	
21PF–1A <sup>1</sup> or 21PF–1B <sup>1</sup> <sup>3</sup> 76.0 .....	<sup>3</sup> 76.0	<sup>3</sup> 30	2,282	5,020	5.0	5.0
21PF–2 <sup>1</sup> .....	<sup>2</sup> 76.0	<sup>2</sup> 30	2,250	4,950	5.0	5.0
21PF–2 <sup>1</sup> .....	<sup>3</sup> 76.0	<sup>3</sup> 30	2,282	5,020	5.0	5.0

<sup>1</sup> For 76 cm (30 in) cylinders, the maximum H/U atomic ratio is 0.088.

<sup>2</sup> Model 30A inner cylinder (reference USEC–651).

<sup>3</sup> Model 30B inner cylinder (reference USEC–651).

(c) Continued use of an existing fissile material packaging constructed to DOT Specification 6L, 6M, or 1A2, is authorized until October 1, 2008 if it conforms in all respects to the requirements of this subchapter in effect on October 1, 2003.

[69 FR 3673, Jan. 26, 2004; 69 FR 55118, Sept. 13, 2004]

**§ 173.418 Authorized packages—pyrophoric Class 7 (radioactive) materials.**

Pyrophoric Class 7 (radioactive) materials, as referenced in the §172.101 table of this subchapter, in quantities not exceeding  $A_2$  per package must be transported in DOT Specification 7A packagings constructed of materials

that will not react with, nor be decomposed by, the contents. Contents of the package must be—

- (a) In solid form and must not be fissile unless excepted by §173.453;
- (b) Contained in sealed and corrosion resistant receptacles with positive closures (friction or slip-fit covers or stoppers are not authorized);

(c) Free of water and contaminants that would increase the reactivity of the material; and

(d) Inerted to prevent self-ignition during transport by either—

(1) Mixing with large volumes of inerting materials, such as graphite, dry sand, or other suitable inerting material, or blended into a matrix of hardened concrete; or

(2) Filling the innermost receptacle with an appropriate inert gas or liquid.

(e) Pyrophoric Class 7 (radioactive) materials transported by aircraft must be packaged in Type B packages.

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended at 68 FR 45038, July 31, 2003; 70 FR 56098, Sept. 23, 2005]

**§ 173.419 Authorized packages—oxidizing Class 7 (radioactive) materials.**

(a) An oxidizing Class 7 (radioactive) material, as referenced in the §172.101 table of this subchapter, is authorized in quantities not exceeding an A<sub>2</sub> per package, in a DOT Specification 7A package provided that—

(1) The contents are:

- (i) Not fissile;
- (ii) Packed in inside packagings of glass, metal or compatible plastic; and
- (iii) Cushioned with a material that will not react with the contents; and

(2) The outside packaging is made of wood, metal, or plastic.

(b) The package must be capable of meeting the applicable test requirements of §173.465 without leakage of contents.

(c) For shipment by air, the maximum quantity in any package may not exceed 11.3 kg (25 pounds).

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended at 66 FR 45380, Aug. 28, 2001]

**§ 173.420 Uranium hexafluoride (fissile, fissile excepted and non-fissile).**

(a) In addition to any other applicable requirements of this subchapter, quantities greater than 0.1 kg of fissile, fissile excepted or non-fissile uranium hexafluoride must be offered for transportation as follows:

(1) Before initial filling and during periodic inspection and test, packagings must be cleaned in accordance with American National Standard N14.1 (IBR, see §171.7 of this subchapter).

(2) Packagings must be designed, fabricated, inspected, tested and marked in accordance with—

(i) American National Standard N14.1 in effect at the time the packaging was manufactured;

(ii) Specifications for Class DOT-106A multi-unit tank car tanks (see §§179.300 and 179.301 of this subchapter); or

(iii) Section VIII of the ASME Code (IBR, see §171.7 of this subchapter), provided the packaging—

(A) Was manufactured on or before June 30, 1987;

(B) Conforms to the edition of the ASME Code in effect at the time the packaging was manufactured;

(C) Is used within its original design limitations; and

(D) Has shell and head thicknesses that have not decreased below the minimum value specified in the following table:

Packaging model	Minimum thickness, millimeters (inches)
1S, 2S .....	1.58 (0.062)
5A, 5B, 8A .....	3.17 (0.125)
12A, 12B .....	4.76 (0.187)
30B .....	7.93 (0.312)
48A, F, X, and Y .....	12.70 (0.500)
48T, O, OM, OM Allied, HX, H, and G ...	6.35 (0.250)

(3) Each package shall be designed so that it will:

(i) withstand a hydraulic test at an internal pressure of at least 1.4 MPa (200 psi) without leakage;

(ii) withstand the test specified in §173.465(c) without loss or dispersal of the uranium hexafluoride; and

(iii) withstand the test specified in 10 CFR 71.73(c)(4) without rupture of the containment system.